

Aviation News

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DECEMBER 20, 1943



Senator Harry S. Truman: *His fact-finding committee on progress of the war program, urges in a report on the nation's transportation system that the airlines be permitted to reclaim more airliners from the Army. The report lauds air transport's remarkable war record.*

Essair Rushes Plans on Test Feeder Route

Operations expected to begin early in 1944; CAB's omission of "National defense" phrase may clear way for pickup line.....Page 31

Stanton Sees Lightplane as Production Stopgap

Popularizing of flying will boost civil plane total to 500,000 by 1950, CAA chief tells contractorsPage 36

Plant Area Boards to Hear Draft Appeals

Files to be forwarded from local units for review by Jan. 9; summary of week's actions in U.S. and war agencies.....Page 12

United's Stock Proceeds to Set Industry Record

Registration statement shows company will enter post-war era in formidable financial position, commentator says.....Page 29

Allies Shuffle Air Forces for Invasion Drive

Lessons of Africa, Salerno and Rome Campaign result in new 15th Air Force under General DoolittlePage 16

Labor Turnover Mars Brightening Plane Picture

About 20,000 workers monthly leave jobs in West Coast plants, AWPC reports; 11 months' labor loss 2035 "Forts".....Page 10

Washington Observer

Westinghouse Announces

A NEW HIGH-FREQUENCY STABILIZED A-C WELDER FOR LIGHT GAUGE WORK

The Type WC-AC welder was designed especially for welding thin-wall tubular fuselage members, tubular chutes on engine mounts, landing gear and light sheet metal work—faster and better.

It meets the four major requirements for successful welding service:

1. Ability to strike and maintain an arc easily over the entire range of working air-fuel gas mixtures.
2. Easy stepless current adjustment.
3. Ability to weld all types of alloys as readily as carbon steel.
4. High efficiency and power factor.

The new Westinghouse Type WC-AC Welder eliminates the need for "adapting" welders intended for other types of service with their slower and less flexible performance. Superimposed high frequency makes the a-c arc persistent on light materials at low currents and boosts welding output. Further, the price of the Type WC-AC welder is comparable with that of regular d-c welders.

For more information on the new Westinghouse High-Frequency Stabilized A-C Welder, call your nearest Westinghouse office, or write today to Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

17-1003



Westinghouse model WC-AC High-Frequency stabilized a-c arc welding unit. The 115 ampere 120 volt unit is shown.

CHECK THESE FEATURES

1. High-frequency arc stabilization permits operator to strike the arc quickly and hold it steady at current settings as low as 10 amperes.
2. Movable core provides very fine stepless current adjustment.
3. Double range current adjustment for welding of special alloys—results in extremely fine current adjustment from 10 to 75 amperes.
4. Fixed current indicator permits adjusting for desired welding current before starting.
5. Switch-on-leads electrode holder (provided in accessories) provides pilot control of the high-frequency initiation.

SLOAN SPEAKS OUT—At a time when most war industries are either awaiting that their full attention is being given to war production or that their postwar plans, if any, are nebulous, it is significant that Alfred P. Sloan, Jr., chairman of the Board of General Motors, speaks out in public about GM's postwar transfer plan calling for an expenditure of \$300,000,000 for re-conversion. Many industry leaders are extremely reluctant to mention or even hint that they have postwar plans for fear of burrowing the wrath of the government upon whom they are dependent for their contracts.

POSTWAR MARKETS—Every thoughtful person knows there is still a war to be won and that the road will be heavy to men and material, that there can be no slackening in the production effort, but at the same time, any manufacturer who is not giving serious consideration to reconstruction and who does not have able executives assigned to this work, may find himself left behind in the competition for postwar markets.

AIRCRAFT COMPANIES HESITANT—Aircraft manufacturers have been particularly reticent even to hint that they are making definite plans for reconstruction, and questions along postwar lines directed to some industry leaders are received with a distorted silence. Observers in the cockpit—making of the aircraft industry's rising production curve now seeing the peak—are inclined to believe that some aircraft companies are being over-cautious in the matter. True, there has been considerable discussion of the postwar aviation industry and evaluation of its prospective volume and there have been some guarded statements on plans for the future, but no all-out public statement such as Sloan made to the National Association of Manufacturers.

GM AND NAA—As far as records of the National Association of Manufacturers show—and NAA members are said to be responsible for about 80 percent of America's war production—General Motors is the first big corporation to come out with a public announcement of its postwar spending program. While it is true that the aircraft industry is in a unique and perhaps dangerous position financially due to vast expansion, the aircraft names proven on battlefronts throughout the world undoubtedly will have great postwar market value if properly prepared before the public.

PLANES VERSUS POUNDS—It has been frequently said in "AVIATION NEWS" that airplane weight is the only true production production. Now West Coast aircraft plants, to preserve their place in the aviation war, are making overtures to have future warplane production figures published on the basis of output pounds rather than numbers of aircraft built. A year ago, West Coast factories could boast they built 88 percent of the nation's military planes. This fall they produced only 60 percent of total planes built, but 68 percent of the nation's plane tonnage. West Coast plane unit production is now 29 percent of planes built. Heavier aircraft is the answer, but the public thinks in numbers of airplanes and publishing weight may take a bit of education to get over.

SANS "BVD"—The Pacific Coast aircraft industry lost its "underchart" Dec. 1 when the identity of Vega Aircraft Corp., Lockheed-owned,



Wright Brothers' flight at Fort in 1903

was erased by the parent company. The action wiped out an amusing aspect of a serious business by ending the once official and later unofficial "BVD" identity of a noted Flying Fortress production group, the Boeing-Vega-Douglas pool. The BVD designation was "official" until a year ago, when the manufacturers of BVD underwrote a formal protest. With a grin, the Fortresses builders obliged and shifted company initials to "B.D.V." From now on it will have to be "B.D.V."—the last for Lockheed.

INCENTIVE WAGE PLANS—There has been little said publicly about incentive wage plans



Westinghouse

PLANTS IN 25 CITIES—OFFICE EVERYWHERE

A-C WELDERS

Truman Committee Urges Release Of More Planes to Airlines

New report prizes air transport industry, says record of airlines entered by Army so far is "not creditable."

By ROBERT H. WOOD

The Senate's Truman Committee in a report on the nation's wartime transportation system warns that sufficient new equipment must be given all media, including airlines, if they are to continue efficient operation.

The report declares that the Committee has demanded from the Army and Navy data on "comparative efficiency in ton-miles and passenger miles and in average daily hours of flight time of the transport planes operated by them."

Results of Changes—This is the result of several public hearings that the services have not used efficiently transports taken from the lines.

In contrast, the Committee points out that the lines have increased average daily scheduled flying hours per plane from 1.63 before 30 percent of their planes went to the Army, to 11.27 on Sept. 1, 1943. Reverse passenger load factor rose from 67 percent on the first half of 1943 to 66 percent in the first half of 1945.

Expects 100,000 Employees—The airlines next July will have 100,000 employees, contracting with 75,000 in July, 1943, and 20,000 a year earlier. Based on the capacity of the present airline fleet, and not on the demand, the Committee forecasts a "possible increase" of 5 or 6 percent in air passenger travel in 1950. It is assumed that most of this gain would be in off-peak seasons.

High Efficiency—The record to Dec. 1, 1943, of returning only 28 planes, six of which were replacements for destroyed planes, is not creditable," the report says. "The airlines... have established that they can utilize the transport planes furnished to them with a very high degree of efficiency. This factor... is very important and should be

given most careful consideration before transport planes are assigned to other uses where the efficiency factor will be substantially less."

Return of a "substantial" number of planes as soon as possible would enable the lines to multiply the service they have demonstrated they are capable of rendering, the report says.

High Value—Although the domestic airlines carried in 1943 only about 6.1 percent of the freight and 1.2 percent of the passenger traffic carried by public transport agencies, their importance "is far greater than such percentages would indicate."

Plane Output Near Peak, Says Nelson

WPA chairman cites steady rise in airplane weight as well as unit cost.

The monthly report on munitions output issued by WPA Chairman Oswald H. Nelson emphasizes that the nation is moving toward its peak production. And, as that peak is approached, even a modest monthly gain is an achievement.

The airplane unit production, as previously announced, was 3,738, exceeding October output by 420, despite the shorter month, but more significantly, plane production was up 3 percent in number, while airplane weight gain was 1 percent and dollar value increase 8 percent.

Bigger and Better—Nelson emphasized that "we are getting bigger and better airplanes."

November average airplane weight per plane was 11,339 pounds, against 7,263 pounds for the first eleven months of the year, and compared with 5,790 pounds in 1942.

Average airplane weight per plane is scheduled to move even higher next year.

For the second consecutive month, neither manpower nor design-change problems constituted major obstacles to aircraft production. Nelson's report said production at West Coast plants demonstrated that the manpower plan, initiated about three months ago, is proving successful throughout the industry.

World Notables Meet To Honor Wrights

Gen. Arnold wins Collier trophy and Posthumous award for original Wright plane will be returned.

By BLAINE STURBLEFIELD

Leaders and peoples of all the world gathered in Washington to pay tribute to Orville and Wilbur Wright at a dinner Dec. 17, the fortieth anniversary of their first flight of a powered aircraft on Kitty Hawk, N. C., in 1903.

President Franklin D. Roosevelt personally invited Orville Wright to the dinner. A message from the absent President, prepared for delivery at the dinner, said Mr. Wright had authorized him to announce that the original Wright plane will be brought back from England and placed in the Smithsonian Institution, from which it had been withheld for many years, due to a controversy which was resolved last year.

Award Wins Award—The Collier Trophy was awarded to Gen. H. H. Arnold, chief of the United States Army Air Force, for the highest achievement in aviation in 1949.

Congratulatory messages from England, Russia and China were received and the representatives of 18 United Nations were present to pay their respects. Scores of cabinet officers, Congressmen, and war officials likewise were present.

Addresses were prepared by Navy Secretary James V. Forrestal and Undersecretary of War Robert Patterson. Mr. Wright has for years lived

THIS HANDFUL OF AUTOMATIC POWER

Protects plane and crew...

Capsules of high energy in compact form, White-Rodgers motorized temperature controls automatically prevent excessively high or low temperature conditions that spell danger to a plane and its busy crew.

Such assemblies can be adapted specifically to your design requirements for any application involving automatic temperature regulation, by local or remote control.

Engineering data will be furnished to manufacturers on request.

WHITE-RODGERS ELECTRIC CO.



ST. LOUIS, MISSOURI

APPROPRIATE AND INFORMATION FOR A MAINTENANCE-TEAM FLYING INSTRUCTIONS.

The new document:

Initial proposals, to be drafted, will be received at this office until 15/10/46 on or before 15/10/46. The signal corps will be responsible for the drafting and the drafting of the signal corps will be responsible for the drafting of the signal corps.

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by his own co-ordinated staff.

Tribe—All civil and military aviation groups and organizations in this country, and some of those in other countries, were represented. Speakers, guests, and honor guests were of one mind with Mr. Wright's previous expression: If it is true that the airplane should have been turned to destructive purposes, every effort must be put forth by all nations to make it work for the good of the human race when this war is ended.

In connection with the fourth anniversary of flight under power, United States Air Service Magazine, edited by Earl Findley, published in December a special commemorative number containing the original drawing of the first flight, and a compilation of letters written by the Wright Brothers during their first summer seasons at Kitty Hawk.

The issue contains numerous analyses and experiences on the first flights by authorities like Oliver Loewy, Dr. George Lewis, Gen. H. H. Arnold and others.

Scientific Procedure—They show that the Wrights achieved flight by scientific procedure, including use of the first wind tunnel, and not by haphazard methods.

Basic formulas of aerodynamics and the fundamentals of airplane control, as worked out by the Wrights, are in use, almost unchanged, today. Mr. Findley has made a life-long study of the Wrights' work and achievements.

TCA Sets Up New Reservation Control

To cope with greatly increased wartime passenger traffic, Trans-Canada Air Lines has established a new central reservation control office at Toronto. Facilities make it possible to ascertain name, address and destination of any passenger holding space or in flight on any TCA plane within about 15 seconds of official report.

The office has 3,300 sq ft of floor space, and is staffed with 70 persons, of whom 60 are girls. It operates 24 hours a day. To reduce noise and increase efficiency, it is equipped with special color and lighting.

But for Army's First Military Aircraft: Photo on left is a reproduction of the Army's bid for production of military aircraft carried by the Signal Corps in 1918. This was the beginning of what later became the Army Air Corps.

soundproofed telephone and teletype rooms. All are air-conditioned.

Personel—Beard—The telephone room contains a secret board, with details of every flight in progress over the entire TCA system in Canada and Newfoundland, and the hour of forthcoming flights. In the telephone room, seven secret rooms, and the entire system from Victoria, B. C., to St. John's, N.F., and provision is made for further expansion. The flag room is equipped with multi-channel conveyor belts to telephone and teletype positions. When space is booked, the ticket clerk at the local traffic office calls a reservation control operator on a direct line, who channels the request to the chart clerk in charge of the desired flight. The control operator advises the teletype immediately.

Increased use of the airways as shown by these figures was anticipated by CAA officials, including Thomas P. Bourne, director of federal airways, as an indication of the need for increased numbers of reservation control operators. The "positive service" afforded by the regular flight paths.

Winter Oiling System

A new cold-weather lubricating system for aircraft engines that is adaptable to all types of internal combustion engines has been devised by Leslie T. Miller, Glenn I. Martin Co. engineer.

The new and patented reports have established the success of the new system as used on Martin-built bombers and other planes. The new development consists of a series of oiling operations on the method of diluting oil with gasoline in order to produce quick starting of aircraft engines in cold weather.

New System Used—Miller explained that under the new method the oil is introduced into the oil after the oil has passed through the motor which prevents the hot motor from diluting out the highly viscous oil, and thus leaves the lubricator and warm-up chamber full of thinned oil. Secondly, the new method sets up a by-pass which keeps cold and hard oil from getting into the hot coalescer and burning it in the third phase of the method permits the use of dual return lines to the oil reservoir—one leading into the warm-up chamber and the other into the reservoir as a whole.

A demonstration of the point where the dilution system will decide whether the oil shall by-pass the coalescer and whether it shall return to the warm-up compartment or to the reservoir as a whole.

Industry, Army Profit by Exchange Of Personnel, Boeing's Beall Says

Engineering vice-president tells of mutual advantages following talk in England with Gen. Eaker, of 8th Air Force.

By MARY PAULINE PERRY

Advantages to aircraft manufacturers and the Army of a greater exchange of skilled personnel figured in recent discussions in Britain between Gen. Ira Eaker, of the Eighth Air Force, and Woodward B. Beall, vice-president in charge of engineering, Boeing Aircraft Co., recently returned from abroad.

Receipt of first hand information by aircraft manufacturers from the man who fly and data given armament by manufacturing representatives all add up to better aircraft and better performance, it was pointed out.

U. S. Methods Used—Beall and the British are now standardizing their production of aircraft and using the heavy machine tool and assembly techniques of American manufacturers. As in this country, he said, they are selecting their most successful designs and types and concentrating on their output.

Beall visited Britain to observe the Flying Fortress performance and to discuss it with armament operating the aircraft.

While abroad, he studied latest British plane designs and investigated new engine types and air tactics.

British Bombers—He said the Lancaster bomber is now being produced by three British manufacturers and that the Stirling was out of production. Beall added he did not believe the British were doing as much on new plane development as the United States, although their engineers are working on several new versions of fighter types and on a new bomber.



CAA EXHIBIT OPENS:

An exhibit "to mark the progress of aviation in relation to the Air Age" has been opened in Washington by the Civil Aeronautics Administration, in collaboration with the New York Museum of Modern Art. Looking at one of the planes was William A. M. Barnes, special assistant to the Secretary of Commerce Jesse Jones, and CAA Administrator Charles I. Stinson.

In addition to the new Avco York transport, the Bristol Company, he said, has been commissioned to do engineering on a large postwar transport.

Optimistic.—The Germans, as far as he could tell, are developing a new Messerschmitt 380, but "it won't be useful in this war," he said, because it takes too long to develop a new plane. He refused the optimism he said is felt by the English Air Force and the RAF over the report that two of Germany's three large fighter plane plants have been destroyed.

On postwar designs, Beall pointed out that the type of plane needed would depend on economics, legislation and international politics.

AAF Orders Removal Of Planes' War Paint

The Army Air Forces have ordered the removal of war paint from almost all of its aircraft, a move which will give Army planes several miles an hour additional speed, will result in a substantial reduction in weight and cut down production man-hours.

AAF estimates removal of camouflage will yield a slight increase in top speed and that there will be a weight reduction in fighter types of approximately 10 to 30 pounds and in heavy bombardment types of from 70 to 80 pounds. Only specialized planes overcast will retain their camouflage where tactical considerations require it in combat areas.



MEYERS MAKES WTS DELIVERIES

War Training Service has received 15 of these Model C-47-248, manufactured by Meyers Aircraft Co., Tecumseh, Mich. It is equipped with a new Kinner R-6, 120-hp engine and was developed especially for operation from airports in high altitudes. Its makers say it will climb to 16,000 feet, completely loaded in ten minutes. It weighs 1233 pounds empty, 1916 gross.

Brightening Plane Picture Marred By Turnover on Production Line

About 20,000 workers monthly leave jobs in West Coast plants, AWPIC reports; loss in man-hours in eleven months put at equivalent of 2,035 Flying Fortresses.

A few small clouds darken an otherwise generally brighter manpower picture in the aircraft industry, labor turnover causing the biggest shadow with some 20,000 workers leaving their jobs in West Coast plants every month and while the need for clerical and other indirect help is diminishing, all plants still need workers for production lines.

The Aircraft War Production Council, in a survey of West Coast plants, found that an average of 94 percent of those leaving gave "personal reasons" such as returning home, wanting a rest or vacation, marriage and similar reasons.

Situation Serious.—The seriousness of the situation is pointed up by the Council's estimate that men have lost in the past eleven months by turnover are equivalent to production of 2,035 Flying Fortresses. The Council insists that if turnover was cut by 50 percent, most of the aircraft industry's manpower problem would be solved.

Following up earlier figures on the monetary cost of turnover, the Council points out that since it costs an average of \$200 to hire and train each worker, the turnover loss this year at the present rate will equal

approximately \$40,000,000 or, based on an average cost per fighter plane of \$75,000, about 600 P-38's, Mustangs and Thunderbolts which failed to get at the enemy.

Type of Worker Is Problem.—In addition is the turnover problem, a steadily declining number of men who seek employment with aircraft companies is willing to accept plant jobs concerned with the physical planning and assembling of war-plans. The manpower problem of most industries is the same: more skilled, but type of workers.

Approximately two-thirds of those who apply for jobs in the warplane plants want clerical or other skilled indirect jobs. Men have been offered transfers from indirect to assembly-line employment, in many instances, prefer to quit. A few of the firms have been able to reduce the need for workers by greater labor utilization and work simplification, if they will not do direct production work.

Indirect Worker Reduction.—Lay-offs of indirect labor in some plants was said to have been urged by Brig Gen. Donald F. Stae, western district supervisor, AAF, Materiel Command, and Maj. Gen. Charles E. Dwyer, Materiel Command, Wright Field.

Despite the complicating factors of turnover and those involved in direct and indirect labor problems, industry leaders believe the steadily rising curve of aircraft production can be continued as these headaches disappear or are eased by concerted Council action.

Production Progress.—Evidence of production strides made is seen in the fact that in the month before Pearl Harbor the West Coast plants produced only 163 planes, many of which were trainers rather than combat types. Today these same plants complete nearly 150 planes every working day—and a vast number of them are war bombers.

On Dec. 7, 1941, the work of 78 skilled workmen was required for one year to turn out a four-engine bomber. Today, only 17 workers are needed for the same period to do the same job. Therein lies the bright aspect of the manpower picture.



A. OGDEN PIERROT

gives estimate on preparing man estimates in post-war Latin America. In the seven years he was named an agency in Buenos Aires, he said about 60 percent of all U. S. planes sold in South America. He represented Curtiss-Wright, Martin, Grumman, Fairchild and Stearns. Earlier he had been U. S. trade commissioner and commercial attaché at the embassy in Rio Janeiro. He spent one year on a U. S. committee studying rubber production in the Amazon Valley. He went to McDonnell from WPA's aircraft production division.

Wars Overoptimists On Postwar Market

McDonnell representative targets decline in plans for sales in South America.

A word of caution against over-estimating the South American postwar aircraft market has been sounded by an expert who has spent ten years in South America as commercial attaché, and seen as a representative of several leading American aircraft companies.

A. Ogden Pierrot, Washington representative of McDonnell Aircraft Corp., said he has been impressed with the seriousness with which aircraft people in this country, including important executives, look to export markets to help solve difficult problems that he shared for the industry.

Views Realistic View.—"I'm very bearish," Pierrot says, "that we can go pretty far off the track by looking into the postwar era on false ideas of the volume of business obtainable."

Speaking of South America, Pierrot says he has state definitely "that the easy picture now being drawn

of markets that will open up in that territory after the war are certain to cause an era of false promises, needless losses of money, etc."

Cargo Equipment Sales.—Potential sale of cargo equipment in South America, Pierrot's opinion, will be limited largely to those airlines established by existing American operators who may obtain permission to operate in Latin-American countries as well as through them. He believes a few Latin-American governments may decide to establish government-owned airlines similar to those operated by the Chilean government "but the total volume of sales probably would not exceed a dozen airplanes per year in all Latin America."

Pierrot pointed out that the bulk of war aviation took place in Latin America has been in military types of aircraft, including trainers and he believes sales to the governments for their military services will continue to represent by far the greater part of the dollar volume of aircraft business in Latin America. He said that one, or consolidation of Routes 7 and 21, which Americans have requested. Among the cities offered in the amendment are St. Louis, Detroit, Cleveland, Toledo and Columbus.

However, if dumping of surplus equipment by the United States and Great Britain is prevented, Pierrot believes a market for training and smaller tactical types of a gross weight under 30,000 pounds should be marketable for a total annual volume during the first five years after the war of from a maximum of \$5,000,000 to a maximum of \$20,000,000 per year.

Minimum Sales Outlook.—Pierrot said it would be too great that even if trade in military aircraft is unrestricted, and assuming that American manufacturers could obtain the greater portion of the business in military aircraft, production average annual sales in Latin America would not exceed \$10,000,000 for the first five postwar years. He pointed out that this takes in complete aircraft only and that spare engines, propellers, and other equipment and parts would account for about 10 percent.

Sales of personal airplanes in Latin America, Pierrot estimated, are not likely to average more than 10,000,000 per annual year to come. This would allow for annual exports of around 500 airplanes valued at \$3,000, which would take care of the light airplanes and the few heavier and more expensive 8-8-place planes.

AA Asks Alternate N.Y.-Minneapolis Line

Only three applications filed with CAB during week.

Three applications for air service and one amendment to a previous application were filed with the Civil Aeronautics Board in Washington last week.

Most amendments were American Airlines' amendment to Dockets 802, 1119, 1143 and 1206, previously filed. The company's intention to take this amendment had been announced by their counsel at a preliminary conference on the application of Northwest Air Lines and others for service roughly following a route from the Twin Cities to New York.

Alternatives Proposed.—American proposed various alternatives to its previous applications in the event that CAB should not authorize establishment of Routes 11, 21 and 41 as one route, or consolidation of Routes 7 and 21, which Americans have requested. Among the cities offered in the amendment are St. Louis, Detroit, Cleveland, Toledo and Columbus.

Americans also filed for a new route from St. Louis to the terminals Cleveland and Detroit, via Springfield, Ill., Indianapolis, Anderson-Madison, Ind., Portland, Ore. and Toledo. This proposed

Mass Producers

Grumman Aircraft Engineering Corp.'s facilities are currently producing more aircraft on a unit basis than any other plant in the country.

Grumman is closely poised by the Middle East of Curtiss-Wright Corp., which is raising its second place.

Other leaders are Bell Aircraft, Lockheed, North American and Douglas. In the production of the Douglas C-47, the Douglas plant at Tulsa, Okla., is producing more than any other plant in the industry.

Washington officials and executives of the aircraft industry, meanwhile, continue to emphasize that airplane weight is the factor standard for production, and it is anticipated that few more government contracts of the industry's accomplishments will be issued in units of aircraft.

route is similar to those presently under discussion at a hearing before Senator Thomas L. Wrenn.

► **Foreign Service Line—A "flyaway"** or ferrying service was proposed by Elden R. Countryman and William B. MacDonald, Jr., of Chicago, engaged in surface transportation of baggage, cargo and house trailers, with the Traveler Transport Co., and Mid-State Trailer Transport, respectively. They ask to be allowed to transport new or used aircraft by rail, or operate an express, over an approved route to any or all points in the United States and Alaska.

Another application which was not concerned with the transportation of passengers was that filed by Transamerica Freight Lines of Detroit. This company operates a fleet of 750 motor vehicles in 12 eastern and midwestern states. It proposes to carry property, mail and express by air-rail subsidiary line, a service it has scheduled and non-scheduled operations. Twenty-nine routes suggested by the company extend roughly from New York to Kansas City, and from Buffalo to Louisville.

► **Helicopter Route Proposed—**From New Hampshire came an application from another common carrier, P. S. Willey Co., Laconia. Proposed service would take passengers, property and mail by helicopter on a daily line to four cities in New York, Boston, Newport, Vt., and Calabrook, N. H., via various intermediate points. Applicant declares this service is not now being adequately provided and provides for moderate per cent trucking operations with air cargo and passenger service.

► **UAL Plan Five Applications—**Also covering many of the towns under discussion at this hearing was from further applicant United Airlines announced it was about to file. These would add 33 cities and 3,688 route miles to their present system. The applications called for a new route from Chicago to Pittsburgh to New York with two operations—non-stop from Chicago to Pittsburgh, and from Pittsburgh to New York, and the other via various intermediate cities on that route.

Other service proposed included a route from Chicago to Cleveland via Indianapolis, Cincinnati and Columbus; an extension to New York of United's present route to Washington; a new Toledo-Washington route via Pittsburgh and other intermediate cities; and a route from Chicago to New York via various cities in Indiana, Ohio and Pennsylvania.

Appeal Boards in Employment Area To Hear Aircraft Workers' Cases

Files to be forwarded from local units for review by Jan. 9. Summary of week's activities in federal and war agencies.

By BARBARA FREDERICK

Selective service registrants who have been granted occupational deferment and whose principal place of employment is in a different appeal board area from that of their local board, will have their files forwarded to the appeal board in that employment area for review before Jan. 9.

This new regulation was issued last week from National Headquarters of Selective Service. The review of all registrants who have received an occupational deferment is required by the recent amendments to the Selective Service law.

► **NWLBs—**Subject to the approval of the National Stabilization director, a new schedule of job classification rates for plants in the defense division, Curtiss-Wright Corp., was established by the National War Labor Board. Plants affected are in St. Louis, Louisville and Columbia, where employees are represented by the International Assn. of Machinists-AFL, at the former two plants, and by UAW-CIO at the Birmingham plant at the Columbus plant.

While there is no general wage increase involved, the new schedule will raise the maximum rates in eight of the ten labor grades and will increase the living-in rate five cents an hour for all grades, bringing the rate to 60 cents an hour.

► **Not a Precedent—**In permitting the increases in some of the job classification rates, the Board majority specified that the rates are to be used as a precedent in establishing rates for plants outside the aircraft industry in the same area.

Labor members dissented from the release of the Board to enforce the rates of Curtiss-Wright's Buffalo plant to the other three plants, but they otherwise concurred in the decision.

► **Retrospective Payment—**In the order for the St. Louis and Columbia plants, a lump sum retrospective payment of \$3 was provided for each full week in which the employee has been on the company's payroll from the payroll period closest to Nov. 22, 1945, to the date of the order. This retrospective payment does not apply to the Louisville plant, as it went into production only in recent months and was not part of the original dispute case centered in the NWLB.

Top rates in eight of the labor grades are increased in the order, affecting only those employees eligible for the top rate because of length of employment in the grade.

Five grades are provided for grades 9 and 10, which remain \$8 and 75 cents an hour, respectively.

► **Maximum Rates Up—**Five-cent increases in the maximum rates for 10 labor grades, 1 and 2 remain \$10 and \$13.50 an hour, respectively. Grades 5, 6 and 3 are increased by 10 cents, bringing maximums to \$11.50, \$12.50 and \$13.50 an hour. Fifteen-cent increases are provided for grades 2 and 1, bringing the new maximum rates to \$1.45 and \$1.35, respectively.

► **Arbitration Policy Modified—**Included in a document, "National War Labor Board's Bureau of Organization and Procedure," released last week, is a modification of the NWLB's arbitration policy in cases where arbitrator's awards are found to be inequitable. In such cases, economic stabilization policy, the case now may be referred to the arbitrator for his recommendation in light of all issues involved. Formerly the Board specified the wage or salary issue is conform with its policy. That it may still do, but it has the additional choice of returning the case to the arbitrator.

► **Both Sides Get Hearing—**Preliminary rulings on whether approval is required for contemplated wage or salary adjustments, will now be given both to the party requesting the ruling and to the other party. The ruling on whether an employee or union might apply to the Wage and Hour Division and might receive a ruling without the knowledge of the other party is a collective bargaining agreement. The new procedure is included in amendments to "Jurisdiction and Procedure of Regional War Labor Boards," recently issued by the NWLB. A further change in procedure has to do with rules for handling appeals, and deals with the reconsideration of dispositive orders and rulings by regional boards.

► **UAW-CIO** was certified as bargaining agent for production and

maintenance employees of Fisher Cleveland Aircraft division, General Motors Corp., Plant No. 1. At the same plant, AFL unions were certified for maintenance painters, carpenters and electricians, majority of whom voted, respectively, for Brotherhood of Painters, Decorators & Paperhangers, District Council 8, Chicago County Carpenters District Council, and International Brotherhood of Electrical Workers, Local 316.

► **United Steelworkers of America-CIO** was certified for production and maintenance employees of Rhine Manufacturing Co., Birmingham, Ala., following an election held Nov. 18. Production and maintenance employees of the Princeton, Tenn., division, Bendis Aviation Corp., Baltimore and Towson, Md., will be represented by United Electrical, Radio & Machine Workers of America-CIO, as the result of an election held Nov. 12.

► **Chemical Employees to Vote—**NWLB directed that hourly rated clerical employees of the Chevrolet Motor division, General Motors Corp., plant, vote in an election convened by UAW-CIO within 30 days of Dec. 4.

As the result of hearings held in October at Fort Worth and Dallas, Tex., National Labor Relations Board recommended that North American Aviation, Inc., cease and desist from discouraging membership in UAW-CIO, or in any other union by restraining or coercing employees in their choice of representation; void a warning issued on

Davis Tests Wing

David R. Davis, inventor of the so-called Davis wing, is not satisfied with the results and application of the wing that has made the Liberator the bomber of the independent. He has become convinced of a serious lack in the aircraft industry.

Now known that he is busy with new experiments and is using the "buckle wing" with which he evolved the original Davis wing—a heavy section with a flat deck, situated to the top. On the deck are sliding doors for experimental airflow sections fitted with performance measuring instruments. While the weather war planes are still in, Davis gives to a Maytag Desert dry lake bed, changing over its glass-smooth surface at high speed, situated to the top of the wing.



Shatters Aerial Records: On her first war mission, the giant Mars, Naval Air Transport Service's new cargo flying boat, shattered four world's records on the Panama Route, N.M., to Natal, Brazil, non-stop flight of 4,073 miles and the return journey by night. The Mars took off from Panama weighing 141,500 pounds gross, the heaviest weight ever lifted by a plane.

employee last March and offer him reinstatement with back pay.

► **DFPC Contracts—**Continued with two companies involved in aircraft production were announced by Defense Plant Corp. by \$108,000. For further facilities at a plant in Union County, N. J., Lawrence Engineering & Research Corp. got an additional \$100,000, bringing the overall commitment to approximately \$1,700,000. Clarke Aero-Hydrolics, Inc., Pasadena, was authorized to provide additional equipment at a plant in Los Angeles County at a cost of about \$30,000. The overall commitment to Clarke now amounts to about \$6,750,000 in both airplanes, the company will operate the facilities, still retaining title.

► **CPA announced** a modification of the aircraft vendor rule. Effective Dec. 15, in cases to U. S. Treasury Procurement Division of birth and native ancestry, aircraft and aircraft engine vendors, producing in accordance with British Standard Specification 959 or 974, ceiling price for Grade A material may be charged to other contractors specifying inclusion of 30 percent Grade B vendor. If more than 38 percent of Grade B material is furnished, however, the quantity in excess of this amount must be sold at Grade B ceiling price, which is 10 percent less than the corresponding price for the same thickness and class of Grade A vendor.

► **Aero-Navy "B" award** has been presented to the Glenside, Pa., Macdonald Aircraft Corp., which recently started work on a new-type bomber. The Oldsmobile division of General Motors Corp., Janesville, Wis., also received this production award.

► **WPA—**Motion to promote establishment of suitable on-plant feeding facilities for war industry workers was announced by Donald M. Nelson, chairman of WPA. A general administrative order placed specific responsibilities in the Office of Civilian Administration and the Office of Labor Production to maintain the highest productive efficiency of civilian employees of industrial plants by making available sufficient supplies, facilities and services, and, in cooperation with the War Food Administration and the CPA, sufficient food for industrial feeding.

► **OWB Report—**This request of Nelson's was interesting in the light of a report from the OWB issued later in the week. From a survey of data from six communities reporting greatest decrease in turnover and cost consciousness with greatest increase in productivity, it was indicated that improved community facilities reduced the number of workers quitting only if on-plant conditions are good.

Un satisfactory in-plant conditions created a high turnover even when good, or at least adequate, community facilities were reported to the War Manpower Commission and the President's Committee on Conquered Production Areas. Highest quitting rates reported were Los Vegas, Nev.; Stockton, Calif.; Portland, Ore.; Vancouver, Wash.; Columbia, Ga.; Panama City, Fla.; and Pasadena, Calif.

► **Airfield Contracts—**Approximately 14,568,000 cubic feet of engineering contracts were awarded by the Chief of Engineers, War Department, for construction of municipal and army airfields, at airbases and AAF bases.

Largest single contract, \$235,000, was for extension of runways at Robins Field, Ga. Runway extensions at Tuskey Army Airfield, Okla., will cost \$155,000 and additional construction at Western Field, Chicago, Mass., is estimated at \$101,100.

Ward Testimony Ends Fairchild Hearings

Aircraft firm's president continues Congressmen on difficulties of plant building.

An investigation into production at Fairchild's plant at Burlington, N. C., died abruptly after J. Clifford Ward, Jr., Fairchild president, appeared before a House Military Affairs subcommittee and explained to the committee's entire satisfaction and education some of the difficulties attendant upon building a new airplane.

Ward's clear, concise and candid testimony was a revelation to some committee members who were impressed with his presentation and that of Lee H. Smith, plant manager.

Service.—Aviation-minded Members of Congress said privately that Ward had performed a service for the entire aircraft industry in making clear the problems which aircraft manufacturers are duly facing and solving.

Rep. John M. Costello, California, Chairman of the subcommittee, after hearing the testimony and conferring with members, had no further hearings would be held and that the proposed probe would be dropped.

Called "Marvelous Job."—After hearing Ward explain in detail the

problems the company had to overcome in getting the Burlington plant into production, committee members complimented him for doing "a marvelous job of clearing up a picture which looked bad."

An investigator for the committee, Wendell B. Blackburn, had reported that more than \$12,000,000 had been spent at the Burlington plant, but that only one airplane had been produced since the plant received its first contract on Oct. 31, 1941. He also testified that the Burlington plant had received three contracts totaling more than \$50,000,000 that 2,500 warplanes had been employed and that 475 gunnery training planes were ordered.

Charges.—Blackburn charged general weakness, inefficiency and cost overruns. Later, Ralph Burton, committee counsel, told the committee that the Burlington schedule called for 178 planes up to Nov. 34, 1943, and that only four had been delivered.

Ward explained that the plant being built at the Burlington plant was a brand new development in material, engineering and power and that it was presently in advance of normal at this stage.

Delivery Schedules.—Smith pointed out that production schedules call for the delivery of ten planes in January, with an increase of five monthly until output reaches 65 a month. He added that he was re-

Ratings Revoked

Preference ratings were revoked by the War Production Board on allegations being undertaken by two aircraft firms. The orders affected a building of Lockheed Aircraft Corp. in Burbank, and part of a project to make alterations to a plant of Goodrich Aircraft Corp. at Lockheed Park, Ariz.

A revocation order issued last June to Cleveland Prototype Aero, Inc., concerning facilities to manufacture aircraft landing gear struts, was extended to extend certain necessary machine tools.

Probably save the schedule would be met.

Ward said his company has been engaged in rough experimentation in advance training planes and that a large share of the money charged to Burlington was for experiments in developing a new type of plane and to prepare for production when experimentation was complete. Conceding failure to meet original schedule, he said the schedules were unrealistic because "we really did not know what kind of airplane we were going to build."

Defends Plant's Output.—While the company has committed or spent approximately \$12,000,000, the events experimentation, plant tooling and training of workers. He explained that, as a consequence, original cost, part of which should be charged against exceeding production, are not excessive.

Ward emphasized and Smith confirmed difficulties in the problem Fairchild had in having a complete force of workers at Burlington and said that, of the approximately 2,500 employees, about 90 per cent had had no previous experience in the type of work required and that a program of in-plant training was necessary. He said labor turnover and absenteeism at Burlington was below average for the industry.

Expenses.—Cost—Ward declared the vast expense of the aircraft manufacturing industry within a comparatively short time of necessity involved large expenditures of money which could not be justified in normal peacetime production, but which were a part of the cost of a wartime production with constantly accelerated schedules. This is a point which the aircraft industry has put forward before and which has been difficult for persons unacquainted with the aircraft industry to understand.

Civil Air Patrol Forms Plant Units

Civil Air Patrol has an activity even less publicized than the regular program, the organization of industrial squadrons, composed of aircraft workers.

The project is rapidly taking hold in a number of areas and company executives are showing interest in view of the effect of CAP training in improvement of employee relations, because a man or woman engaged in a specific job in an aircraft plant gets an entirely new and valuable viewpoint of the work if taught some of the fundamentals of aviation through CAP courses.

100 Skill Workers in Group.—A recent report from Georgia says about 100 employees of the Bell Aircraft plant near Atlanta are attending CAP classes and that many others have indicated interest and a desire to join the program.

In Michigan, one squadron is composed entirely of civilian engineers at the Romulus Army air field. Prior to employment there, at least 90 percent of them had little knowledge of aviation. They are now taking CAP training in all base courses. Several Army officers have volunteered to teach various classes.

Industrial Squadron.—Michigan's Second Service Squadron, in Detroit, formed to assure expert maintenance of CAP aircraft, is composed of plant workers. This squadron has the facilities of the Aero Mechanics school available for training in aircraft engines and aircraft.

One of the new industrial squadrons which various wings have formed to give aircraft workers an opportunity to round out their knowledge of aviation is at the Chrysler-Wright plant at Louisville, Ky.



New Piper PT Experimental Plane: This new two-engine model, shown in flight and on the ground, is designed for multi-purpose duty, with excellent uses for both instructor and student. Non-structural materials are used wherever possible. It is powered by a six-cylinder, 130-hp. Franklin engine.

New Piper Built for Multi-Purpose Job

Low wing primary trainer has twin panels, removable landing gear.

A new Piper experimental PT low-wing, designed to perform multi-purpose duties, is powered by a six-cylinder 130-hp. Franklin engine, and cruises at over 130 mph, flies at more than 150 mph, and yet lands at less than 50.

With wheels retracted, the Piper PT in flight has a definite pursuit appearance and provides excellent vision for both instructor and student.

Twin Instrument Panels.—Instruments are identically placed on panels in each cockpit to prevent confusion over location or absence of any instrument. Non-structural material has been used wherever possible, and special care given in design to assure ease of maintenance.

The cockpit cover has a top section hinging on the right side with sliding windows on each side and, with top section secured, the plane can be flown with windows up or down.

Fuselage.—The fuselage is of conventional steel tubular Warren truss construction, with rammer structure as integral unit between front and rear cockpits. Wood structure is used and the turtle deck is of plywood. The fuselage is fabric covered, with the exception of removable inspection panels.

The full cantilever wing has built-up, box-type monospar and wood ribs, comprised of center section and two outer panels joining outboard of the landing gear attachment.

40-Gallon Fuel Tanks.—The center section carries two stainless steel fuel tanks with total capacity of 40 gallons, in addition to the landing gear and retracting mechanism. The wings are covered with mahogany plywood, which in turn is fabric covered.



KINGFISHER PRODUCTION COMPLETED

Deliveries of one of the best known Naval aircraft, the Chance-Vought Kingfisher (OS2U-3), observation scout, have been completed and production at the Stratford plant has terminated. It was built both in landplane and seaplane versions.

COMMENTARY

Allies Shuffling Air Forces For Big Invasion Campaign

Lessons of North Africa, Salerno, and road to Rome result in new 15th Air Force (tactical) under Doolittle, while 12th becomes tactical force; Brenton may lead U. S. air tactics.

When one of the war's outstanding ground commanders writes a book on the use of air power it's news—even if the book is largely devoted to the prime importance of air power in combination with ground forces.

Not so long ago military leaders during without exception were accustomed to think of the airplane as a battle weapon, to be used in "support" of ground operations. The sheer weight of facts as shown in the campaigns in the Mediterranean during 1943 had changed all that. The principles underlying these campaigns and blueprinting those that lie ahead are embodied in a recently announced book by General Sir Bernard L. "Mooney" Montgomery, which is being privately circulated among senior officers of the British Army and Royal Air

Force and also American ground and air generals.

► **The Air-Ground Ties**—Unpublished in this case as the textbook for the new invasion of Europe it is high up on the required reading list of every air officer at this time. It is not likely that the rest of us will get even a peek at it until the dustbin is over, but a general indication of its contents may be gained by a careful analysis of past events. A good place to start would be at an important official ceremony in Tripoli on February 14, 1943, when the Northwest African Air Force were established under the command of Lt. General Carl A. ("Tooney") Spaatz. General Montgomery had just made a few remarks expressing in highest terms the value of the powerful air operations of the RAF and U. S. Ninth Air Force in the

break-through at El Alamein and the spectacular pursuit of the Afrika Korps across Libya. Air Vice-Marshal Sir Arthur ("Mooney") Coningham, who with General Brenton was largely responsible for the tactical air offensive, responded in the following words: "You will notice that the Army Commander does not use the word 'Cooperation'. I submit that we in the Eighth Army are beyond the cooperation stage, and that work is so close that we are, in effect, one unit . . . There has been an equal air cooperation by the Army as Army cooperation by the air, and the natural result is that we have now passed beyond that stage into a unit or units in which one part automatically helps the other."

► **Tactical Air Triumph in Tunisia**—Coningham was then the logical commander of the newly organized Northwest African Tactical Air Force, and Brig. General Lieutenant S. Kuter became his deputy. The tactical air doctrine hammered out in the earlier desert fighting by General Montgomery, Air Marshal Tedder, Coningham, Brenton and Strickland, converting initial RAF mistakes and profiting by fatal errors of the Italian and German air forces, were brought to a new peak in the Tunisian campaign as the rich experiences of General Spaatz were thrown into the pot.

► **New Air Set-Up in England**—The revolutionary nature of this new application of tactical air power is seen in two important steps taken early last summer, only a few weeks after the triumphant conclusion of the Tunisian campaign. The Royal

THE TOUCH OF TOMORROW IN THE PLANES OF TODAY



Reunion on the Field of Battle

These are Fairchild shows—fighting men from Norway, Canada, the U. S. A.

Though they come from different parts of the world, these skillful warriors of the United Nations Air Forces have much in common.

Typical of thousands of fliers on every fighting front, each was given an intensive course in a Fairchild Primary Trainer on one important step on the road to winning his wings. Their meeting upon some distant airfield is virtually a reunion of "old grads" of the same *Alma Mater*.

It is easy to understand why the Air Forces choose Fairchild for primary training.

There is the element of added safety. For example, quick take-offs and steep climbs can be performed by novices in a Fairchild Trainer without danger of stall-

ing, which caused so many fatalities in the last war. The trainer, behind a 175 or a 200 horsepower Ranger engine, just "pours on the coal" and he's quickly in the air with a lot of runway to spare.

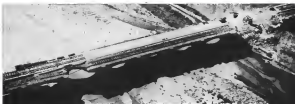
And when it comes to aerobatics, which give a trainee an intimate feel of the controls and teach him instinctive flying, a Fairchild is the answer to an instructor's prayer. No need to crush the student's confidence by telling him not to dive at high speeds. Just teach him all the tricks in the bag, with the full knowledge that safety has been built into every inch of every Fairchild Trainer.

Maneuverability with great safety, and rugged landing characteristics—for which all Fairchild trainers are famous—provide the foundation stone of Fairchild's "touch of tomorrow in the planes of today."

BUY U. S. WAR BONDS AND STAMPS

Fairchild Aircraft

Division of Fairchild Engine & Aircraft Corporation, Hagerstown, Maryland—Burlington, North Carolina



"ALMOST PERFECT BOMBING"

This photograph released by the AAF shows what the big air force forming in England hopes to do on an unprecedented scale in Western Europe to sever German communications. Described by the AAF as "al-

most perfect bombing," the direct hit on this Italian bridge made it impossible to move traffic but did not destroy the entire length. Allied engineers will be able to repair the damage when they move up.

Air Force announced the winning up of the Air Support Command and the formation of a Tactical Air Force in England. This was quickly followed by an announcement by General Baker that the U. S. Army Air Forces based in England would be reorganized into a Strategic Air Force and a Tactical Air Force. The lessons of Africa, and more recently of Salerno and on the road to Rome, will be turned to powerful account in the coming invasion of the continent. Reports have persisted that General Brenton, who was in on the early developments, may head up the American air tactical program, and that Air Marshal Clegg, who will head up the British, bringing the two together again for a tougher job than ever.

American Army Doctrine—The second result of the African victory was the official acceptance by the U. S. Army of the air doctrine that were so happily vindicated in that campaign. July saw the advent of a 28-page booklet, FM 100-30, "Command and Employment of Air Power," crystallizing under General Staff authority the air doctrine of the war to date and setting the pattern for the future.

Air Power at Salerno—According to FM 100-30, there are three phases of air operations to be carried out: (1) Attainment of air superiority; (2) Isolation of the battlefield; (3) Attack of ground objectives on the battlefield. In the three weeks preceding the invasion our air forces drew over 17,000 sorties, dropping more than 19,000 tons of bombs in operations against the enemy air force and his reinforcements. Airfields and installations were wrecked, hundreds of planes were destroyed or damaged, bridges and rail junctions bombed with heavy, medium, and light bombers and fighters-bombers taking part. While this activity continued, the next main at-



HELICOPTER GOES ABOARD A CARRIER:

One of the Navy's newest fighters, a Grumman Helicat, is hoisted aboard a big flat line aircraft carrier. Officer with megaphone is directing operations, while sailors hold line to the plane's tail.

tion was given to isolating the battlefield and the big all-out drive to knock out strategic bridges, rail centers, to destroy supplies, trucks, goods trains, etc., in order to cut off reinforcements was begun. The third stage was the actual landing, and coming to the task of suitable fields new enough for land-based fighter planes to keep off enemy dive-bombers, it was no small task for a day or two, but by throwing in the more strategic air force, the tide was turned and the victory won.

New Springboard—An air base in southern Italy became available, fighters and medium bombers were transferred from Africa, and the heavens are expected to be in operation shortly from such strategic

bases as Foggia, with its command of the Aegean Sea and the Balkans, as well as important targets in northern Italy, southern France, eastern Germany, Austria, Hungary and Slovakia. The newly formed Fifth, under Maj. General Donahue, has become the Strategic Air Force for this area, and the Twelfth continues as the Tactical Air Force, possibly to be commanded by Maj. General Hootz who led the Salerno air operations, or Maj. General Chas. who succeeded General Kuter last May as deputy commander of the Northwest African Tactical Air Force.

These air-ground teams appear to be set for the big dogs.

—NAVY/AFS



RETIRED FORTRESS VETERANS:

The Signal Corps photographed these two battle-pocked flying fortresses, "Little Eva," and "Special Delivery," on a field somewhere in North Africa. Con-

ditioned for further combat action, they are being dismantled and stripped of parts to be used for making repairs on other damaged planes.

AIRCRAFT PRODUCTION

Army's Cold-Pressure Chamber Aids Design of Plane Armament

Special chamber at Wright Field put into operation after a year of construction and cost of \$700,000; research to prevent gun failure at high altitude.

By ALEXANDER MESSURLEY

Army Air Forces Materiel Command Armament Laboratory at Wright Field has started use of its new cold-and-pressure test chamber, largest of several such test rooms there, and one of the largest in the world. The room is 26 feet in diameter, 36 feet high, with walls of three-quarter-inch steel lined with 13 pounds of insulation. A test run, also of steel, can be lifted off by a crane to permit entry of large pieces of armament equipment into the chamber.

Quick Changes—Two large vacuum pumps suck air from the chamber. To get the lower pressures found at high altitudes, and their capacity is such that the chamber can simulate an air pressure change from sea level to 40,000 feet in 15 minutes, and to 16 miles in 31 minutes.

Four electric fans in front of 40 kilowatt electric heaters can produce heat in the chamber up to 375 degrees above zero, while a two-stage refrigerator will send a refrigerant through coils in the walls of the chamber to cool it, if necessary, to 75 degrees below zero.

Test All Conditions—"We can find out exactly how guns, barrels, and other mechanical armament equipment work under every condition—heat, cold, and altitudes even higher than those at which our present planes can fly," says R. M. Skiers, civilian engineer in charge.

Technicians using the chamber enter it through an airlock if the apparatus is already simulating high altitude. This enables them to ascertain their bodies to the change in pressure more gradually, so that they do not suffer from decompression, the high altitude disease usually to men-seas diver's bends.

Design Equipment—Inside the big chamber they attach sensors, make to tubes hanging from the walls, and plug in their electrically-heated fly-

ing suits if a cold test is in progress.

Controls of the chamber are manipulated by an engineer outside the walls, who is in constant communication with the men inside by microphone, and who watches through a glass port, ready to turn on heat into the chamber and "bring it down to earth" at the first sign of trouble.

Cost \$700,000—The apparatus was constructed at a cost of \$700,000 and took more than a year to build. Colonel Franklin C. Wolfe, armament laboratory chief, explains that because of the size of armament units such as barrels and guns, none of the other chambers at the field had

been large enough to accommodate them and the technicians operating the tests.

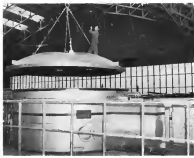
Device Saves Tires

Goodrich idea saves landing wheels during air plane tests.

Pre-landing rotation of airplane wheels to ease wear and test of landing impact, long an objective for aeronautical engineers, is attained by Henry P. Skellogg, late engineer at R. P. Goodrich Company, who discloses invention of a self-starting airplane tire that will attain high rolling speed before it touches ground.

Flare Wheel—This pre-landing rotation, he explained, requires no motor, being achieved solely by a unique arrangement of vanes, or fins, built into the sidewall of the tire so that when the landing gear is lowered they catch the air and thus set the wheel spinning. The fins, made of rubber and fabric, are so constructed and placed that they spring back into position. Each with the hub's axis, as the "vanes" half of each rotation of the wheel.

James S. Pedler, manager of Goodrich's aeronautical division, said the effectiveness of this mode of pre-landing rotation in lessening airplane tire wear has been proven.



WRIGHT FIELD'S COLD AND PRESSURE CHAMBER:

Side of the new cold and pressure chamber in Wright Field's armament laboratory is indicated in the above photo. The engineers enter the chamber through the airlock door at the right. The ten-ton roof can be lifted to permit entrance of large piece of armament equipment for sub-zero testing.

Trail Blazing in the Skies

1925



THE LARGEST COMMERCIAL NON-RIGID AIRSHIP FLEET in the world was built and flown by Goodyear in the interval between World War I and II. Beginning with the launching of the *airship Pilgrim* in 1923, no less than twelve airships have flown the Goodyear flag from eight airships flew a total of 4,000,000 miles coast to coast. These ships flew a coast of 4,000,000 miles without a single mishap, providing a great increase of knowledge regarding air structure, meteorology and airship engineering that has been of incalculable value to the nation in wartime lighter-than-air operations.

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE AIRCRAFT INDUSTRY

1. By constructing *airships* in *manufacture* of *airships*.
2. By designing *plans* for *all types* of *airships*.
3. By *re-engineering* *plans* for *mass production*.
4. By *submitting* *our* *research facilities* to *aid* the *airship* *industry* in *designing* *or* *improving* *airships*.
5. By *building* *complete* *airships* and *airships*.

1943



THE LARGEST NON-RIGID AIRSHIP EVER BUILT is the new M-1, recently completed by Goodyear Aircraft for the United States Navy. Approximately 30% larger than the Goodyear-built airships now so effectively protecting America's coastal sea lanes, the M-1's wider cruising range and greater bomb-load capacity make it a more effective member of the anti-submarine team. Distinctive feature of the M-1 is its three-axis articulated control cabin that distributes its weight over a large area of the envelope — a novel application developed by Goodyear Aircraft out of its long experience in lighter-than-air design.



GOOD YEAR
AIRCRAFT

ingly demonstrated in tests. He said special tires of the PT-19 by 14 was that the company had furnished a conventional turbine and "successfully made more than twice as many landings as the average delivered by conventional tires at the same size in similar service."

Smothered Landings—Pfeiler added that, although reduction in landing-impact wear was the primary reason for the new device, the already-spinning wheels make possible noticeably smoother landings. Landing-shock wear has been an increasingly critical problem to the aviation and tire industries in recent years, as a result of tremendous increases in plane size and weight, demanding larger tires and higher landing speeds. Py-rotation should contribute to lowering the strain on landing-gear assemblies.



Cornell on the Wing: Fairchild Aircraft in Hagerstown, Md., has interpreted production of the PT-19 shown above, to concentrate on the PT-26a replacement for the Royal Canadian Air Force and the Royal Norwegian Air Force's "Little Norway" in Canada. Fleet Aircraft Ltd., also produces PT-26's in Canada.

Fairchild Steps Up PT-26 Production

Output of PT-19 interrupted at Hagerstown plant for new model

Production of an undelivered number of PT-26 Cornell trainers, which are used by the Royal Canadian Air Force and by the Royal Norwegian Air Force at "Little Norway" in Canada, is now under way at Fairchild Aircraft in Hagerstown, Md.

Fairchild interrupted its PT-19 production schedule for the new line.

The Fairchild PT-26 is a refinement of the better known PT-19, is powered by a 200-hp Ranger inline six cylinder engine. It has a sliding cockpit enclosure, cabin

heater, lighted blind flying instruments and hood. It is used for secondary training. Gross weight is 2,700 lbs., and cruising speed is 116 mph.

PT-26 Output Increased—By discontinuing production of the PT-19 for a brief period, Fairchild has stepped up its PT-26 production schedule by 100 percent over the previous months during which this model was restricted at Hagerstown.

Continuation of PT-26 production at Fleet Aircraft, Ltd., in Canada, combined with the increased production at Fairchild will provide a substantial portion of training aircraft required by the Canadian and Norwegian through the winter months.

Diesel Units Studied For Non-Power Uses

Aircraft Corp. developing system for pre-cooling and pre-warming of cabins

Application of diesel units to aircraft for other than power uses is under study by Aircraft Manufacturing Co. of Los Angeles, which believes diesel development may be part of the answer to more comfortable air travel in the future.

Expanded use of diesel always a topic of interest in the aviation in-



Boots Will Eliminate This Chore After Victory

Often stiff bike shakes and shivers say so loudly that he can't ride it safely. Normal vibration loosens wheel nuts—probably every other nut too—said Dad. So to get a wrench and tighten up the whole bike, but after the war, Dad will ride safer and Dad will be spared many a tightening-up session, because well-made bikes will wear Boots Self-Locking Nuts. Even severe vibration can't shake Boots Nuts loose. For safety's sake and to eliminate repairs caused by vibration-loose d components, you will insist on products protected with Boots Self-Locking Nuts.



Self-Locking Nuts For Application in All Industries



They Fly With Their Boots On—Farther

Boots All-Metal Self-Locking Nuts are lighter than any other similar fastenings. On a single Liberator or Flying Fortress they save up to 80 pounds. That's enough to enable one of these 4-engine giants to take along extra gallons of gasoline—or 200 additional rounds of .50 caliber machine gun ammunition. A little extra range or a few more bullets may be just what's needed to get a bomber home from a 2,000 mile raid over enemy territory.

If case you're wondering whether nuts as light as Boots can "take it," there is plenty of evidence to prove just how tough they really are. They withstand the corrosive action of oil, salt water and chemicals. No amount of plane vibration can loosen their grip. Boots Nuts can be used over and over again—literally "outlast the plane." In fact, today these nuts are worn by every type of U.S. aircraft. Yes, Boots Nuts meet the exacting specifications of all government aviation agencies.

BOOTS



AIRCRAFT COMPARED WITH TOTAL WAR PRODUCTION
These charts, recently issued by the War Production Board, show graphically the vast expansion of the aircraft production program and how next year's schedule compares with this year's record-breaking output. The second chart shows total war production for the last three years and the schedule for 1944.

Canada Aids U.S.

Not Canadian aircraft production is participating in the U. S. plane program, according to Washington officials. Details have not been released on all types incorporated in the schedule, and the total number of Canadian planes sent to this country does not represent a sizeable proportion of our monthly deliveries.

The companies are Boeing Aircraft of Canada, producing Catalina Victors, Ltd. with a four-engine C-47; Woodys Aviation Ltd. with the UC-41 single-engine transport, and the AT-15 or AT-4 advanced trainer. Fairchild Aircraft Ltd., with a single-engine Navy type; Canadian Car & Foundry, a single-engine Navy type, and Fleet Aircraft Ltd., largest producer, with the Fairchild Cornell primary trainer.



CANADIAN ASSEMBLY LINE:

Aircraft workers in Canada, as in the United States, are setting production records. This new view at Fleet Aircraft, Ltd., plant at Fort Erie, Ont., shows sleek F-102s under construction. In the foreground is the second assembly line, with final assembly in the rear.

duality, has a stimulant in the expressed view of J. C. Garrett, president of Aeresearch's parent, Garrett Corp., that he possesses a basic diesel engine design (two opposed pis-

tons per horizontal cylinder—no cylinder heads or gaskets—single fuel injector—low center of gravity) that has great possibilities.

► Uses—Uses for Aeresearch diesel,

still in the experimental stage of development, are envisioned to include: supersonic passenger cabin and cargo pre-cooling, airport power and light, as well as tests and bus air conditioning, railway quick-draw refrigerator cars, service power for small industries and business, oil industry power and pleasure boat and automotive power.

Aeresearch officials believe a diesel for small planes may be evolved.

► Pressurized Cabins—Their engineers envision pressurized airliner cabins which will keep the passengers at sea-level comfort. They have been perfecting controls to hold pressure constant during climb and descent, to adjust pressure gradually during earthen flight from low to higher altitude airports.

Source of Aeresearch's direct interest in the company's purchase of the Coast diesel patents and the engineering skill of diesel experts associated with a Garrett subsidiary, Northill Co., Northill's success in manufacture of pre-war diesel was only casual and its diesel program, now being given new life by Aeresearch, came to a halt with the successful manufacture and sale of the lightweight Northrop Biplane engine, invented by Jack Northrop, president of Northrop Aircraft. Pre-war use of the Northrop motor for flying boats spread to world-wide distribution as standard equipment for small yachts and motor boats.

► Sea-Level Comfort.—Aeresearch has been little before the public because most of its work is under military restrictions, but the firm is intent upon playing in business after the war and has lured national advertising to the suggestion that "while your postwar airliner flies at 14,666 feet, its Aeresearch-pressurized cabin will keep you at sea-level comfort." That the company should issue to employees "Porter Questions No. 1" based entirely on determining their reaction to a post-war diesel program was of definite interest to the industry.

New Navy Prop Order

A new contract for a large number of hollow steel propeller blades has been received by American Propeller Corp., Toledo.

William F. Wae, president of the propeller company and executive vice-president of AVCO, said the blades will be used by the Navy. Other combat type planes for which American Propeller blades have been made include the Thunderbolt P-47, the Airacobra P-39, and the Mitchell B-25 medium bomber.

Joint Meeting With Councils Considered for Chamber Planning

Changes in by-laws, election of new Board of Governors, and important decisions on reorganization are deferred indefinitely.

Results of the recent membership meeting of the Aeronautical Chamber of Commerce, while forecasting active participation of chief executives of leading aircraft companies in the Chamber, also indicated definite steps would not be taken immediately.

There remains little doubt that industry leaders are desirous of having a strong national trade association which can speak with authority on matters affecting the industry generally. At the same time, private concern of all these men now is to meet accelerated production schedules. Once aircraft output reaches desired goals and no longer needs the full attention of chief executives, then they undoubtedly will turn their attention to their national trade association.

► Name Change Likely.—A possible change in name and limitation of membership to manufacturers was indicated by the statement of those attending the Washington meeting. One tentative suggestion for a new name was "Aircraft Industries Association," designed to identify it more clearly as a trade association representing the aircraft manufacturing industry.

Pending by-law changes, the election of a new Board of Governors and decisions on other questions were deferred until after a special meeting of members. It was considered likely that this meeting might be held in conjunction with the next meeting of the National Aircraft War Production Council, whose members also are members of the Chamber, in order to assure the largest possible attendance of industry leaders.

► Board of Governors.—The new Board of Governors is expected to include the heads of six West Coast and six East Coast manufacturers of airframes and/or engines, two manufacturers of aircraft parts and accessories and one representing other members.

Proposed nominations for officers, to be acted on by the new Board were: Donald W. Dewees, chairman of the board; J. Carlton Ward, Jr., of Fairchild, president; vice-presidents, LaMotte T. Colby, of Northrop; L. D. Bell, of Bell Aircraft; Treasurer, R. W. Cobb, Northrop; Secretary, L. E. Taylor, of Douglas.

► Murray Represents—James P. Murray, vice-president of Boeing Aircraft, and Chamber president, committed to continue in office until the Board can act on the new nomination. Murray submitted his report to the members, reviewing the industry's production achievements, activities of the various Chamber Departments—Technical, Traffic, Economic Development and Information—as well as various moves made with regard to a program for reorganization of the association.

Tunnel Tests Fuzes

Westinghouse's baby model simulates 800 mph. gale.

A three-foot-long wind tunnel which creates 200 to 800 mph gales to simulate wind currents neces-

sitated by falling bombs has been developed by Westinghouse engineers at East Springfield, Mass., to test fuzes for 20-lb fragmentation bombs.

A. L. Atherton, manager of quality control, first applied the wind tunnel test to these fuzes, which are installed on the bomb's nose as a safety device to protect aircraft which drop fragmentation bombs.

► Prevents Explosion Prematurely.—The safety fuse on the bomb prevents detonation until the bomb is safely away from the plane. To pass the wind tunnel test, a fuse is "dressed" synthetically at 200 miles an hour, 400 miles an hour and 800 miles an hour.

To test a fuse, a technician places it inside the tunnel in the path of compressed air to be fed from a cylindrical tank. A switch starts an automatic timer and opens a magnetic valve. At the valve opens, a burst of air rushes from the tank through a reducing nozzle to the fuse, where it runs and releases the safety device. As the safety device flies off, it permits a burst of light to strike a photoelectric cell. This causes the cell electrically to close the valve and stop the timer.



HAMILTON DISPLAYS BIGGEST BLADE:

This 23-foot-diameter propeller recently was constructed by Hamilton Standard Propeller Division of United Aircraft Corp., and is believed to be the world's largest. It was built for test purposes and is not scheduled for any specific plane. The huge blade is shown beside the "largest" prop of a Flying Fortress or ordinary commercial airliner, 11½ feet in diameter.



UNITED BREAKS PRODUCTION RECORD:

Choice Flight Aircraft Division of United Aircraft Corp. has topped its delivery quota during eight of the last nine months, according to R. H. Beusel, general manager, who said November output of the Marry's Corsair fighter, shown in the new picture above, each wing folded, exceeded substantially the quota set for the period. Beusel said increased schedules for December will be met.



STARTING JANUARY 18TH IT'S UP TO YOU!

STARTING January 18th, it's up to you to lead the men and women working in your plant to do their jobs as good as by helping to put over the 4th War Loan. Your Government picks you for this job because you are better fitted than anyone else to know what your employees can and should do—and you're their natural leader. This time, your Government asks your plant to meet a definite quota—and to break it, plenty!

If your plant quota has not yet been set, get in touch now with your State Chairman of the War Finance Committee.

To meet your plant quota, we tell you that you will have to hold your present Pay-Roll Deduction Plan payments at their peak figure—and then get at least an average of the **EXTRA \$4000 bond** from every worker!

That's where your leadership comes in—and the leader-

ship of every one of your associates, from plant representatives to foreman! It's your job to see that your fellow workers are asked the **fastest investment** in the world. To see that they buy their share of tomorrow—of Victory!

That won't prove difficult, if you organize for it. Set up your own campaign right now—and don't take for anything less than a 100% record on those extra \$4000 bonds!

And here's one last thought. Forget you ever heard of "100%" as a measure of a reasonable investment in War Bonds under the Pay-Roll Deduction Plan. Today, thousands of families that formerly depended upon a single wage source now enjoy the comfort of several. In such cases, 10% or 15% represents but a paltry fraction of an investment which should reach 25%, 50%, or more!

Now then—Up and At Them!

Keep Backing the Attack!—WITH WAR BONDS

This space contributed to Victory by **AVIATION NEWS**

This advertisement prepared under the auspices of the United States Treasury Department and the War Advertising Council

PERSONNEL

Donald G. Hynd, (left) has been named manager of the Oklahoma City installation center of Douglas Aircraft Co. where he will have charge of all maintenance on C-47 cargo transports. He was formerly assistant as-

William J. Worth, for two years assistant investigator and safety inspector for Douglas Engineering Corp. has been appointed safety engineer for the Louisville division of Consolidated Vultee Aircraft Corp. Before joining Douglas, Worth was with the Beechcraft Division for eight years.

Kenneth Lawson, former assistant superintendent of Vultee Field, has assumed his new duties as works manager of the Louisville division of Consolidated Vultee Aircraft Corp. Before going to Vultee Field, three years ago, Lawson worked for Voight-Silversky for 11 years. Starting in the experimental department, he was national superintendent when he left. Prior to that, he served a five-year apprenticeship as tool and die work with Remington Arms.

Dr. Samuel A. Moss, General Electric engineer, will receive the **Sylvanus Albert Reed Award** for 1943. It will be presented at the Honors Night dinner of the Institute of New York Jan. 24. This honor is conferred annually by the Institute of the Aeronautical Sciences in recognition of his contribution to aeronautical engineering. Dr. Moss' contribution in the "development of the turbo-supercharger, which has made possible the high altitude operation of aircraft." Dr. Moss received the 1940 Collier Aviation Trophy jointly with the Army Air Forces, and also was General Electric's Coffin award for his supercharger work. The 1942 winner of the Sylvanus Albert Reed Award was Igor I. Sikorsky.

Samuel F. Lewis heads the education department of Consolidated Vultee's Kansas division. Transferred from the San Diego division, Lewis previously assigned in aircraft engine and component instruction at Camp Cressler, AAF Technical Training school for B-26 squadrons assigned by Consolidated Vultee. Assistant supervisor of the education department is C. S. McLaughlin, who has been placed in charge of all vocational training.

W. G. Selma, who joined Fliesinger last September as assistant to the vice-president, has been appointed assistant secretary. Selma was with Suro. He was with the Sperry Gyroscope Co.



Glasgow

Bertie

C. S. Glasgow, (left) has been appointed assistant chief engineer of the mechanical section of Douglas Aircraft's engineering division. For the last two years he has been in the section, designing landing gear. He was formerly a stress engineer for the company. **C. W. Bertie**, (right) formerly general supervisor of structural assembly on the C-54, has been promoted to shift superintendent. For over a year he has been working in the organization and layout of Douglas Aircraft Corporation's new Chicago plant.

H. V. Schoenberger will direct inspection activities in all divisions of North American Aviation, Inc., as a result of his appointment to director of quality control at the company's Inglewood, Cal., headquarters. He was formerly North American's factory manager at Kansas City, where he is succeeded by Harold R. Reese, assistant manufacturing manager. **Robert McCallister**, former quality control director, has been made general manufacturing manager on the General Office staff.

Reig Cam Friedrich L. Anderson, commander of the Eighth Air Force Bomber Command, has been promoted to a major general. At 35, he is one of the youngest major generals in the American Army. He recently was awarded the Congressional Medal of Honor for leading the American bombing attack on the Ploesti oil fields in Rumania.

Samuel H. Betts, with Kinney Industries Co. for over a year as sales engineer, has been advanced to sales manager.



Samuel H. Betts, with Kinney Industries Co. for over a year as sales engineer, has been advanced to sales manager. Betts will promote permanent mold castings of a laminated and engineered, with particular emphasis on the new products-type conversion of new developments and in war products to production needs also will be among Betts' major duties. Betts joined Kinney with the Western Precision Control Co. and Union Oil Co. of California.



Henry Beeken, until recently chief statistician and assistant manager for Fliesinger, Thibault & Co., New York, has been elevated to the executive position of research assistant to the president of Pennsylvania Coastal Airlines. Beeken has a background of more than 15 years' experience in analysis and statistics for a number of Wall Street firms.

Lockheed Aircraft Corp. has voted a dividend of 38 cents per share payable Dec. 15 in stock of record Dec. 15. The action was in line with Lockheed policy of voting dividends from time to time as conditions warrant, without regard to specific purpose or sales. Robert E. Gross, president, pointed out that the dividend was not to be construed as a regular quarterly declaration, or as payment which established any schedule or policy for future payments.

No Martin Refund

Renegotiation Board finds an excess profit in 1943 losses.

Finding no excessive profits in 1943 losses of Glenn L. Martin Co., the Army Renegotiation Board has arrived at an agreement with the aircraft company under which no refunds will be required.

Glenn L. Martin, president, commented that it would be unnecessary, therefore, for his firm to make any adjustment in the annual statement issued last March. No provision for refunds had been made in that statement.

1943 Race Double—Martin said the operations of his company during 1943 were at approximately double the 1942 rate. At the same time, he said the company's efforts will be

intensified greatly during next year under the war production program which heavily emphasizes aircraft.

Canadian Car's Plant Tests 1,000th Plane

Anheim, N. S., works averages one a day over 1,000-day period.

The 1,000th aircraft built, assembled or overhauled at the Anheim, N. S., plant of Canadian Car & Foundry Co., Ltd., in 1,000 days recently was test flown at the plant.

The plane was a new Anson Mark V twin-engine bomber, one of several types made or assembled by the company at its various plants throughout Canada. The Anson Mark V is made under supervision of Federal Aircraft Ltd. a government company, which has set up various component manufacturers throughout the Dominion.

Made of Plywood—As a result of wartime experience, the aircraft is largely wooden, built of plywood construction as described in a previous issue of AVIATION NEWS. It is assembled at a number of plants, of which the Anheim factory is one. Another is MacDonald Bros. Aircraft Ltd., Winnipeg; Canadian Car & Foundry makes part of the components, the wing structure at the Montreal Turbot Aircraft plant, pro-

pelers at the Montreal Propeller plant.

Canadian Car & Foundry has been building aircraft since before the war, designing its own fighter, the Greger, and building Grumman fighters for Turkey at its Fort William, Ont., plant which is now devoted to construction of Coastal Militaire for the United States Navy. Parts for the Hellcat also are made at the Montreal Longue Point plant of the company and the propeller plant at Montreal.

Improved Model—The Anson V is an improved version of the Anson I, which was a discarded bomber with Chevrolet IX 330-hp. engines. The Anson V has the same wing as the earlier version, but has a fuselage designed for increased speed and landing instruction. It has a hydraulic system for automatic operation of flaps and undercarriage, is powered with two 450-hp. Pratt & Whitney Wasp Junior engines, and cruises at about 145 mph. Top speed is about 180.

Carries Gas for Four Hours—It can cruise for four hours, carries 140 gallons of gasoline in four tanks. The wing span is 54½ ft., length is 47½ ft. It weighs 10,000 lbs. empty and slightly over 4½ tons loaded. Behind the pilot's seat along the port wall are three desks for first navigator, wireless-air gunner and second navigator. Special fittings include an air duct in the tail and a camera hatch in the fair

TRANSPORT

Essair Pushes Plans To Start New Feeder Route Early in 1944

CAB's omission of usual "national defense" phrase believed to clear way for establishment of Texas aerial service.

Encouraged by the Civil Aeronautics Board's omission of the usual "national defense" phrase in its new certificate, Essair, Inc., officials foresee an early opening of the first feeder line in Texas authorized by the Board.

E. Y. Holt, vice-president of the Dallas firm, now building pre-constructed huts for the Army and Navy, plans to make arrangements for personnel, facilities and equipment soon after the first of the year. While making no prediction when service will start, he comments that "if we can get into operation in three months, we ought to strike a fertile field," an indication that Essair is counting to some extent on travel among the numerous army camps in Texas.

Expanses in 1944—The temporary certificate granted Essair expires at

the end of 1943. First to authorize a true "feeder," it calls for service between Houston and Amarillo via Austin, San Antonio, Abilene and Lubbock, an indication that all intermediate points be served on each scheduled trip and traffic reports be submitted periodically.

In the same action, CAB gave Continental a three-year approval of service from Hobbs, N. M., to San Antonio, and amended Essair's AM 56 certificate to include Austin. It denied Essair's application to provide service between E. Paso and San Antonio. Applicants of Route and Continental for further routes under consideration as the same proceeding also were denied.

Delayed by Defense Needs—In rendering Board and Continental certificate, the Board ordered that service shall not be started until the

holder is notified that the national defense no longer requires delay. This qualification was omitted from Essair's certificate, a circumstance interpreted by that company's officials as an effect granting preference to Essair, although the qualification is the usual thing and often is followed soon by the permissive notice.

Holt anticipates no difficulty in obtaining two-engine equipment, probably Lockheed. His company has knowledge, he says, of at least 30 suitable planes, now owned by individuals, of which some might be available. A manufacturer of twin-engine five-passenger planes has communicated with him, and Essair recently had opportunity to purchase two other ships.

Pilots Available—Essair does not expect to encounter pilot shortage, says this official, adding that he already has had offers from pilots interested in the prospective feeder operation. As further evidence of interest in the Board's decision, he notes long-range flights from civilian leaders in Texas cities not named in the new certificate, asking that Essair include their municipalities in its feeder routes.

New Haven Ad Urges Rail-Air Coordination

Full page advertisement runs in eastern newspapers.

By MERLIN MICHEL.

The railroad stressed interest in aviation circles last week when it advertised in eastern newspapers for "a coordination of interest between an established airline and our rail and highway systems."

By using the advertisement was interpreted as an invitation by the New Haven to the air carriers to participate in its New England Airline, Inc., formerly TWA-New England, from which TWA withdrew last summer. Had the advertisement not mentioned an "established airline," it was suggested, it could have meant that the railroad desired to operate New England Airline, Inc., as a unit with its grand system.

Filed For Five Routes—This prospective air carrier, in which the railroad was to hold a minority interest, has filed for five routes, two of them between New York and Boston, totaling 613 miles among various intermediate points in the New England area.

Others noted that the seven-color display appeared on the day the House Rules Committee was to



PLANT MOVIES HELP CUT ARSENITEUR:

At least four West Coast plane plants (Douglas, Lockheed, North American, Northrop) are showing recreational movies to employees at night during ramp and graveyard shift changes. Both 16-mm. and 35-mm. projectors are used, and films are usually brief to fit lunch periods—news, comedy, musical and animated "shorts." March of Time, and Army aviation productions. At Lockheed and at General Electric's Erie plant (pictured) full length features are shown into air parts and shown as serials. This cinema workers may raise the casual installment if they skip a shift. Long-air company distributing midshift movies is Plaza, Inc., New York City.

New High-Speed Electric Motor

An industrial motor, claimed as the world's latest, has been designed by Robert M. Baker, of the Westinghouse Research Laboratories to speed production of airplane engines and other precision-built machinery.

The motor is 30,000 rpm faster than any electric motor now being built for industrial use. There are several devices that turn faster, but they are almost all laboratory curiosities.

Operates at 66,000 RPM—Baker's motor revolves 1,650 times a second and could be used to drive high speed grinders that put a mirror-like finish on hard-to-reach internal surfaces of plane and tank engines.

But, the motor is not powered by large, slower motors connected to the grinding wheel shaft by belts and pulleys. The new high-speed motor would drive the grinder directly, increasing grinding accuracy.



SIX AIRLINES LOOKING TO DC-4:

This specially posed picture shows "passenger" near an unpainted Douglas C-54, military version of the DC-4, which six airlines have disclosed officially that they plan to fly in transcontinental service after the war. AVIATION NEWS last October, reported the liner agreement with Douglas Participating in the announcement were American, Eastern, Pan American, Pan American-Globe, United and Western Air Lines. TWA, which is having post-war hopes on the Lockheed Constellation, was not included.

consider the Lom bill to revise the Civil Aeronautics Act—an action postponed, the industry—and caution by any of the railroads on the issue whether surface carriers should be permitted to engage in air transportation.

► **Close Knowledge of Area**—The New Haven, denouncing "our place is the air future of Southern New England," cited its knowledge of that

will work in peace. We believe America will have no railroads the opportunity to prove it."

A Boston attorney, who has been leading New England Airlines applications, and he understood that, despite TWA's withdrawal prior to hearings in the New York-Boston route hearings, it was New Haven's policy to prosecute the applicants. The railroad announced some time ago that it intended to continue its bid for air operation, but the attorney emphasized that it would do so as a minority, non-controlling interest.

► **Speech Circulated**—The Transportation Association of America, a few days after the New Haven's advertisement appeared, circulated a speech by Samuel B. Pettengill, its vice president and general counsel, in which integration of water, rail, service. It fed into "positive common carrier transportation systems" was advocated. "The diversion of traffic between track, train, boat or airplane should be based on performance and price alone," Pettengill said. "The line has passed for one transport agency to try to win over another by its fluency in legislative committee rooms."

Also of current interest was a letter to Pennsylvania railroad stockholders by W. M. Clement, president, in which he said the policy of the Pennsylvania is "to perform a complete transportation service by rail, with such secondary services as are necessary. . . . The Pennsylvania Railroad has no desire to become a monopoly. It neither seeks to dominate rail transportation nor does it intend to dominate transportation in other fields." Clement added that while his road was an originator of transcontinental air service, "today it is not financially interested in any air line."

Bus Lines Ask Delay On Feeder Routes

Greyhound and Blue Ridge press three-point plan to CAB.

A possible temporary solution to the situation worrying all applicants for feeder or local air service, who see the existing carrier spreading out into what they consider infringement of their potential territory was offered by Greyhound Corp. and Blue Ridge Lines in testimony to the Civil Aeronautics Board.

Admitting the CAB is "confronted with an administrative problem without precedent in the history of

the regulation of transportation in this country," Greyhound asked the following suggestions on what procedure the Board might follow in connection with the immediate and future development of air service to smaller communities:

► **Postpone decision**, until all applicants who seek authority for any point or any route have a chance to be heard.

► **Revoke any additional service** granted to trunkline carriers so that no points closer than 200 miles apart could be served by these carriers.

► **Issue only temporary certificates**, reserving the right to reexamine and, if necessary, revoke such certificates after consideration of all applications.

Greyhound points out that it is not advocating the denial of air service to any point now in need of such service. It feels, however, that if the trunklines are given permanent certificates to these smaller points, the effect will be to deprive the future local operator of the nucleus of traffic that will be essential to their successful operation. Or, as expressed by Blue Ridge, "any other plan may only lead to trunklines lifting the 'creams' points and leaving only the 'skimmed' points to the local service."

► **Disband at St. Louis**—This topic was one of those under discussion at the recent St. Louis Convention of the National Aviation Trades Assn. and the Aviation Distributors & Manufacturers Assn. Every new in-

termediate point provided on the route of an operating carrier brings concern to operators in the local field, as they see another potential point on their proposed routes being ignored, it not eliminated.

The airlines protest, for the most part, is that they are best able to build up the necessary local service adjacent to and paralleling their trunkline routes.

► **Waxed on Policy**—Some government officials expressed the opinion that the suggestions included in Greyhound's memorandum were valid. Of interest to them also was what might be called a warning in the memorandum filed by Blue Ridge Lines. It said, in part: "If we are to protect the air transportation pattern from the present scramble of trunkline carriers for new routes and new points to the detriment of the establishment of local service to communities through feeder applicants, thereby necessitating state action to protect this local service to the community. . . . This board must use care and caution during the present national emergency to see that a policy is adopted that will not give a pre-empted right to [trunkline] over applicants filed but not yet heard."

Longest Airline Open

The Army has established the world's longest air freight line, from Philadelphia, Okla., to India, a 26,000-mile round trip. C-47's, assigned by the Air Transport Command, are operating the route on scheduled service for the Overseas Supply Section of the Air Service Command.



LIFE RAFT SEXTANT:

New celestial navigation instrument, designed especially for use in life rafts. It is a Princeton design, rugged about a pound and will float. Use of this celestial sphere on a life raft eliminates need for a nautical almanac, sextant and compass. Invented by F. H. Wagner, of San Antonio, who has developed many scientific navigation devices.



WAL'S NEWS STAFF:

Western Air Lines claims the first all-woman staffed News Bureau. Left is Midge Winters, and to be the only woman news bureau director among the airlines. With her is her new assistant, Virginia Zimmer. Each holds a degree from the University of Missouri.

Budd Sees Postwar Airline, Rail Boom

A pioneer in streamlined train construction has assured the railroads that they need have no fear of airline competition after the war—that there will be passengers enough for both.

Edward G. Budd, president of the Philadelphia company bearing his name, told the American Society of Mechanical Engineers at New York last fall forum of transportation will increase after the war, and automobiles and the airlines as well as the railroads will share in the boom.

► **Architect**—Asserting that "the automobile people are ambitious," Budd added that "the airplane people, too, are ambitious. They offer comfort and they do save time. They have small units, which can depart at frequent intervals, and they will, naturally, have a large expansion."

"But," he continued, "the railroads need not fear this competition." Development of the art of building railway equipment, he said, will bring "irreversible expansion" in number of railroad passengers, especially in long distance travel, the bulk of the increase probably coming in low-cost luxury sleeper coach travel. "Luxury travel will continue," Budd asserted, "but it never can be promoted to much greater volume than we have had in the past," where possibility of low-cost luxury coach travel is "almost limitless."



skill born of experience

Mercury craftsmanship was built up through more than a score of years devoted exclusively to the production of aircraft and aircraft parts; hence war-time demands found us with the equipment, experience and specially trained artisans to deliver vitally needed parts quickly . . . without the delay of plant conversion and the hazard of hastily trained workers.

aluminum tanks

For instance, plant 2 is a completely equipped unit for fabricating and finishing of tanks of any type . . . forming, drawing, welding, machining, testing and painting . . . progressing smoothly, steadily and swiftly from skiving sheet to finished shipment.

Aircraft makes knew they can depend on Mercury quality and deliveries of tanks, motor cases, parts and accessories.

At the Cradle of Aviation





CAL TURNS OUT 1,000th FORTRESS:

Continental Air Lines has rolled the 1,000th B-27 of the production line at its Denver modification plant.

Warner Sees Slash In Air Cargo Costs

Profits slump due to traffic volume with reduction in charges.

Richard P. Warner, vice-chairman of the Civil Aeronautics Board, has "every hope" that within three or four years after the war operating costs on mixed loads of passengers and cargo in air transportation will have come down from the 37 cents per ton-mile prewar figure to "something around 18," with the figure for cargo operation alone as low as 10 or 11 cents.

With a rate of 15 cents per ton-mile on cargo, drop airport to airport, would multiply by 10 or 15 and perhaps more the power volume of air express, in Warner's opinion. This figure, allowing for pickup and delivery cost, would be about a third of the present rate.

Other Factors Involved—Warner told the Engineering Society of Detroit that cost is not the only factor in determining air cargo's future. The "gentleness" of air transportation, he asserted, will permit lighter and more economical packing. Transshipment costs and cargo claims can be cut. Air cargo will permit rapid removal of stocks from factories, permitting distributors and retailers to reduce inventories, especially abroad.

He was going on in efficiency of postwar cargo operations, in a period untroubled by shortage of equipment, and trained men, although "costs will need to undergo a substantial further reduction because really heavy loads into the present freight loads of truck, railway or vessel can be expected."

Passenger aircraft personnel who worked on it before it was taken to a dispersal point.

Cut Cost Reduced—From 1929 to 1935, unit cost was reduced from about 45 cents per payload-capacity ton-mile to about 35 cents, and came down another fourth in the next four years up to time of general introduction of the DC-3. With some reduction of unit cost following increase in use, Warner sets a substantial part of the drop between 1935 and 1937 due to increase in gross transport weight from the 13,000 lbs. of the 18-passenger Boeing to the 25,000 lbs. of the Douglas DC-3. "Doubling of the weight of the DC-3 ought to reduce its operating cost per ton-mile by about 10 percent," he says.

He expects improvement in aerodynamic efficiency—lifting flaps, rudder and better wing forms—and believes that technical problems of

the so-called "flying wing" can be solved and cost reduction through aerodynamic improvement may be expected to 20 percent or more, instead of 10 or 12. Such machines, however, will have to be limited to heavy traffic routes, since they could hardly be built to operate economically at less than 30 tons payload capacity.

Savings in Weight—Other improvements may develop through savings in weight, a matter Warner went into extensively. There is a possibility, he says, of reducing operating overhead, and improvement in life expectancy.

He concluded that "allowing for the impossibility of maintaining such lead factors in peace as have been built up in war, and for a normal operating profit, the situation would correspond to passenger fares of about 2 cents a mile, and air contracts, exclusive of pickup and delivery charges, of about 18 cents a ton-mile.

"Let me emphasize," he added, "that I am not presenting these figures as probabilities for the month after fighting stops, but as likely to be attainable after operating conditions have been reasonably stabilized, and after some additional operating experience has been secured under peaceful conditions, and after the manufacturing industry has had time to market new aircraft of postwar design."

Traffic Rate Maintained—In a tribute to the war operations of the domestic airlines, he disclosed that during August and September each plane owned by the domestic lines flew an average of 1,390 miles a day. Despite lack of equipment and drop in total mileage, the latter about 25 percent, total traffic handled by the

airlines has not decreased. In August, passenger movement bettered 1943's best month by 3 percent, mail traffic was two and a half times that for the summer of 1941, and the proportionate increase in express traffic was even higher.

Where load factor until the spring of 1943 was never over 40 percent for the airlines as a whole, in a single month, it went up to 62 in the summer of 1943, and for four consecutive months of this year was above 90 percent. He described the operation of priorities, for which about 2,100 certificates are issued daily.

Warner also complimented the airlines on their "remarkable" records for safety and regularity of service. No mishap has occurred, he said, in the hundreds of flights, and regularity of service has been coming in the form of tightened schedules for individual aircraft. Where before 1942 the percentages of trip completion did not rise above 92%, last year it was just over 94, and indications are that 1945 will be even higher.

CAB Cuts Mail Rate For Delta, Northwest

Delta Air Corp. and Northwest Airlines become the seventh and eighth air carriers, respectively, in the 14 months to have their rate of mail compensation set at 3 mill per pound mile by the Civil Aeronautics Board.

These two cases were similar in

most respects to those previous, even to the discussion of Board Member Shelton Branch from the majority opinion. He has doubted in all but one of the 93 mill mail rate decisions. Branch reiterated his former stand that in those cases, also, from estimates of future operations of the companies, the 63 mill per pound mile rate "contains an element of government subsidy."

Mail Pay Reduction—Delta, formerly received 24 cents per airplane mile and Northwest's compensation was 30 and 37 cents for various segments of its system. The new rate of 0.3 mill per pound mile, computed on airport to airport mileage, will result in an annual mail pay reduction of \$423,255 for Delta and \$284,900 for Northwest.

The Board concluded from operating statements and other data submitted by Delta that the company might be expected to realize a profit of \$343,000 per annum before mail pay and federal income taxes. The rate is estimated to yield annual mail revenue in the amount of \$423,255 which, added to profits from passenger and property operations, comes to \$764,925 before federal taxes. After taxes, a 40-45 percent over-all net operating profit might reasonably be expected, according to the Board.

Operate at Profit—In Northwest's case, although the mail pay reduction is greater, and statistics of the company would indicate they may be expected to operate at a loss of \$603,943 with present passenger and express rates, even with the new

rate of 32 mill the current annual mail revenue is estimated at \$1,140,140. This would result in a net estimated profit after Delta and state taxes of \$445,243.

The new rate for Delta was made effective Feb. 1, 1945, and for Northwest it is effective one month later.

Bender Maps Hearings On Aviation Dept. Bill

Rep. George Bender, Ohio Republican, is hopeful that hearings may be held soon after the first of the year on his measure (H. R. 3082) to establish a new Department of Aviation in the government, with a Secretary of Aviation.

Bender as a member of the House Committee on Expenditures in Government Departments, to which the joint resolution was referred, and says "I don't intend to let this one slip."

Wants Secretary of Aviation—Bender, he has been interested in aviation for years, the Chairman and aviation is being administered on a "piecemeal" basis. The legislation he proposed recently would transfer to a Secretary of Aviation all the powers and functions of any office, department or independent agency of the government relating to military or civil aviation, to be exercised by the secretary—who would be appointed by the President with the consent of the Senate at the same salary as other cabinet officers—to develop and expand aviation.



COLONIAL'S IDEA FOR FUTURE:

Colonial Airlines has released the distribution of a futuristic design by V. T. Barnhill for a 128-ton jet-propelled freight express plane with an announcement that it plans to use such a ship after the war. Classified for the planes a 40-ton payload and 4 seats a day air speed. Laterally loaded wings, 3,200 h.p. twin gas turbine or

Deisel engines with counter rotating propellers, fuel capacity to haul perishable one-stop from Miami to Montreal in nine hours at consumption of about 250 gallons an hour, average cruising speed 180 mph, and average altitude 10,000 ft., wing span 218 ft. and length 77 ft., excess space for mail and freight, 1,000 cu. ft.

10

An Expert Looks Ahead

WHEN THE nation plunged into war, and the airlines lost half their fleet to the Army, and traffic soared to phenomenal heights, a rumor sprang up that the remaining planes were being overworked.

It gained such currency that the Air Transport Association began to devote the space in its then current series of advertisements in newspapers and magazines to the industry's undragged maintenance and safety standards. The individual lines enlisted through their own publicity offices and advertisements. The rumor died.

Last week Dr. Edward P. Warner, the CAE's able vice chairman, showed how wrong that rumor was. He disclosed that the industry's accident rate has actually declined since the war started.

From 1933 to 1937 the accident rate is placed by Dr. Warner at about 1.8 fatalities per 100,000,000 passenger miles. Between 1939 and 1943, this was reduced to an average of 0.8. In the 43 months to Dec. 1 the rate had dropped to .23. Only one calendar year in the history of American air transport (1933) had a better record than that for the most recent year cited.

"The special strains of war, increased intensity of utilization of equipment, and the loss of many experienced personnel, might have been expected to increase the hazards of flight," Dr. Warner says. "Fortunately, and greatly to the credit of the operating personnel, no such increase has occurred."

This safety accomplishment, plus the added triumph of the lines in regularity of service (more than 94 percent of all domestic trips scheduled were completed), moves him to say:

"If so much can be accomplished in time of war, the records of safety and regularity that will be established when peace brings its new opportunities ought to be sensational."

Big vs. Small Business

LESS THAN A YEAR AGO Raytheon Age, undisputed U. S. voice of railroad management in this country, was taken to task for its attitude toward aviation who were picturing quite a future for scheduled air transportation. Today, however, it is taking indignant exception to those who believe the railroads should not be "allowed to participate" in this promising new field.

Although there were a number of alert railroad executives long ago who realized the potentialities of air and were eager to sprout wings, the more recent change in Raytheon Age's attitude probably is an accurate reflection of the delay in the switch of the majority of the big roads to a program of action.

Smaller roads, it is true, are content with what they have and are banking their future on some rather revolutionary improvements in physical plant, roll-

ing stock and other improvements in service. These railroads want no part of aviation.

But others do and the fight for air rights is on in earnest. Those who do not think so have their heads in the sand. Not many in aviation think railroad domination will insure maximum development for the airlines, despite the billions of dollars in new assets available. It's a David-Goliath tussle, even with the best brains and cooperation the airlines can muster and so far their preparation for and participation in the fray have been rather feeble, with some tactical errors. The airlines—not necessarily far tomorrow, but for perhaps a year or two or five from now—is not a happy one for the present generation of airline executives. Because once the railroads succeed in getting into the picture, the whole character of the industry will start undergoing a revolution.

Those who believe the railroads' entry into scheduled air transportation will prevent its maximum growth and maximum service to the public should have leadership and a mature, intelligent plan. The lack of progress on the Lee bill to date wouldn't indicate they have either.

Export Aircraft

THE suggestion of A. Ogden Pierrot, elsewhere in this issue of *Aviation News*, that the aircraft industry study carefully its probable market in Latin America after the war is linked with another recommendation made recently to the Aeronautical Chamber of Commerce economic development committee.

Although few U. S. controls should be clamped on exports, it is worth noting that the British government virtually guarantees the quality of British planes which are exported. The United States has never certificated export aircraft in this manner.

Great Britain requires that certificates of airworthiness be obtained by the exporter on each plane exported. These certificates assure the purchaser that the particular craft has the official approval of the government. Thus, in the event of development of a defect in design or manufacture, the British government at once notifies all purchasers affected. While it is to be taken for granted that U. S. manufacturers themselves would report such defects at once, the psychological effect on the purchasers would still be more favorable if they knew that the government of the United States was behind each plane.

"The prestige that results for British aircraft, as regards reliability as a result of this official assistance given by the British government in the export markets is enormous," Mr. Pierrot told the committee, "particularly in the case of purchasers made by small governments."

Although some firms might see a possibility of more red tape by the government by virtue of the implied Federal responsibility, it is a matter for serious thought by the industry and the Commerce department or other pertinent agencies.

ROBERT H. WOOD



WAR PLANES, TOO, NEED SMOOTH COMPLEXIONS

A skin-smooth skin means much to a woman's beauty. But to a war plane, a sleek, smooth skin is more than a matter of appearance. It's a matter of performance.

For when fighter planes fly at speeds in excess of 400 miles per hour, even the slightest bumps and irregularities on flying surfaces, can affect speeds and operating efficiencies.

That's why at McDonnell, we not only take extra care to see that rivets are driven exactly and evenly, but also employ special methods to assure smoother surfaces on metal "skins".

For we believe that good craftsmanship is as necessary as good design. Both are vital in

the production of aircraft worthy of the men who fly them.

The development of special techniques for controlling skin contours, represent only a few of many refinements employed at McDonnell to assure the production of highest quality aircraft and parts.

To that end, enlightened and experienced management, loyal, skilled and seasoned personnel, are working together three shifts a day—striving to perform each operation better and faster—never forgetting their responsibility in maintaining McDonnell's reputation of meeting production requirements . . . on schedule.

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"UPSTAIRS" means home to a *Thunderbolt*

When a Thunderbolt pilot "takes her upstairs," he takes her clear to the roof. "Upstairs" to this plane is that area bounded roughly by the 35,000 and 40,000-foot altitude marks.

Biggest job assigned to Thunderbolts today is providing top cover for the bombers battering Hitler's Europe.

The job is being done. See almost any newspaper for convincing evidence.

The stratosphere will be equally important as a sky route for tomorrow's high speed, long distance air transport. Men and women who designed and built the Thunderbolt will know how to put peacetime planes into the stratosphere. Republic Aviation Corporation, Farmingdale, L. I., New York and Evansville, Indiana.

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